IN THE CLAIMS

Please amend the claims as follows:

1-9. (Canceled)

10. (Previously Presented) A method of forming a semiconductor structure, comprising:

forming an insulating layer on a substrate;

forming an opening in the insulating layer, wherein the opening has a bottom on an exposed portion of the substrate and sidewalls defined by the insulating layer;

forming a conductive layer on the insulating layer and the exposed portion of the substrate;

forming a fill layer on the conductive layer, wherein the fill layer fills the opening;

removing the conductive layer and the fill layer to a level below a top of the insulating layer, thereby forming a container structure having sidewalls comprised of the conductive layer on the sidewalls of the opening, and a closed bottom comprised of the conductive layer on the bottom of the opening;

forming a dielectric cap on a top of the sidewalls of the conductive layer, wherein forming a dielectric cap on top of the sidewalls includes forming a dielectric layer on the insulating layer, the conductive layer and the fill layer, and removing the dielectric layer from the insulating layer and the fill layer;

removing the fill layer to expose an inside of the container structure; and

removing at least a portion of the insulating layer to expose an outside of the container structure.

11. (Original) The method of claim 10, wherein the processing proceeds in the order presented.

12. (Original) The method of claim 10, wherein removing at least a portion of the insulating layer to expose an outside of the container structure occurs subsequent to forming a dielectric cap on a top of the sidewalls of the conductive layer.

13. (Canceled)

14. (Previously Presented) The method of claim 10, wherein removing the dielectric layer from the insulating layer and the fill layer further comprises removing the dielectric layer from the insulating layer and the fill layer using an anisotropic etch.

15. (Original) The method of claim 10, wherein forming an insulating layer on a substrate further comprises forming a layer of borophosphosilicate glass on the substrate.

16. (Original) The method of claim 10, wherein forming a conductive layer on the insulating layer and the exposed portion of the substrate further comprises forming a layer of conductively-doped hemispherical grain polysilicon on the insulating layer and the exposed portion of the substrate.

17. (Original) The method of claim 10, wherein forming a fill layer on the conductive layer further comprises forming a layer of photoresist on the conductive layer.

18. (Original) The method of claim 10, wherein forming a dielectric cap on a top of the sidewalls of the conductive layer further comprises forming a cap of silicon oxynitride on a top of the sidewalls of the conductive layer.

19. (Original) The method of claim 10, further comprising:
annealing the dielectric cap.

20. (Previously Presented) A method of forming a semiconductor structure, comprising:
forming an insulating layer on a substrate, wherein the insulating layer comprises at least one insulating material selected from the group consisting of oxides, nitrides and borophosphosilicate glass;

forming an opening in the insulating layer, wherein the opening has a bottom on an exposed portion of the substrate and sidewalls defined by the insulating layer;

forming a conductive layer on the insulating layer and the exposed portion of the substrate, wherein the conductive layer comprises at least one silicon material selected from the group consisting of amorphous silicon, polysilicon and hemispherical grain polysilicon;

forming a fill layer on the conductive layer, wherein the fill layer fills the opening, further wherein the fill layer comprises a filler material selected from the group consisting of photoresists and high etch-rate oxides;

removing the conductive layer and the fill layer to a level below a top of the insulating layer, thereby forming a container structure having sidewalls comprised of the conductive layer on the sidewalls of the opening, and a closed bottom comprised of the conductive layer on the bottom of the opening;

forming a dielectric cap on a top of the sidewalls of the conductive layer, wherein the dielectric cap comprises at least one dielectric material selected from the group consisting of oxides, nitrides and silicon oxynitrides, and wherein forming the cap further includes forming a layer of the at least one dielectric material on the insulating layer, the conductive layer and the fill layer; and removing the layer of the at least one dielectric material from the insulating layer and the fill layer;

removing the fill layer to expose an inside of the container structure; and

removing at least a portion of the insulating layer to expose an outside of the container structure.

21. (Canceled)

22. (Original) The method of claim 20, further comprising:

annealing the dielectric cap.

23. (Previously Presented) A method of forming a semiconductor structure, comprising:

forming an insulating layer on a substrate;

forming an opening in the insulating layer, wherein the opening has a bottom on an exposed portion of the substrate and sidewalls defined by the insulating layer;

forming a conductive layer on the insulating layer and the exposed portion of the substrate;

forming a fill layer on the conductive layer, wherein the fill layer fills the opening;

removing the fill layer to a level substantially even with a top of the insulating layer or below the top of the insulating layer;

removing the conductive layer to a level below the level below the top of the insulating layer, thereby forming a container structure having sidewalls comprised of the conductive layer on the sidewalls of the opening, and a closed bottom comprised of the conductive layer on the bottom of the opening;

forming a dielectric cap on a top of the sidewalls of the conductive layer;

removing the fill layer to expose an inside of the container structure;

removing at least a portion of the insulating layer to expose an outside of the container structure; and

wherein forming a dielectric cap on a top of the sidewalls of the conductive layer further comprises: forming a dielectric layer on the insulating layer, the conductive layer and the fill layer; and removing the dielectric layer from the insulating layer and the fill layer.

24. (Withdrawn) The method of claim 23, wherein the processing proceeds in the order presented.

25. (Withdrawn) The method of claim 23, wherein removing at least a portion of the insulating layer to expose an outside of the container structure occurs subsequent to forming a dielectric cap on a top of the sidewalls of the conductive layer.

26. (Canceled)

27. (Previously Presented) The method of claim 23, wherein removing the dielectric layer from the insulating layer and the fill layer further comprises removing the dielectric layer from the insulating layer and the fill layer using chemical mechanical polishing or blanket etch-back.

28. (Previously Presented) The method of claim 23, wherein forming an insulating layer on a substrate further comprises forming a layer of borophosphosilicate glass on the substrate.

29. (Previously Presented) The method of claim 23, wherein forming a conductive layer on the insulating layer and the exposed portion of the substrate further comprises forming a layer of conductively-doped hemispherical grain polysilicon on the insulating layer and the exposed portion of the substrate.

30. (Previously Presented) The method of claim 23, wherein forming a fill layer on the conductive layer further comprises forming a layer of photoresist on the conductive layer.

31. (Previously Presented) The method of claim 23, wherein forming a dielectric cap on a top of the sidewalls of the conductive layer further comprises forming a cap of silicon oxynitride on a top of the sidewalls of the conductive layer.

32. (Withdrawn) The method of claim 23, further comprising:
annealing the dielectric cap.

33. (Previously Presented) A method of forming a semiconductor structure, comprising:
forming an insulating layer on a substrate, wherein the insulating layer comprises at least one insulating material selected from the group consisting of oxides, nitrides and borophosphosilicate glass;
forming an opening in the insulating layer, wherein the opening has a bottom on an exposed portion of the substrate and sidewalls defined by the insulating layer;

forming a conductive layer on the insulating layer and the exposed portion of the substrate, wherein the conductive layer comprises at least one silicon material selected from the group consisting of amorphous silicon, polysilicon and hemispherical grain polysilicon;

forming a fill layer on the conductive layer, wherein the fill layer fills the opening, further wherein the fill layer comprises a filler material selected from the group consisting of photoresists and high etch-rate oxides;

removing the fill layer to a level substantially even with or below a top of the insulating layer;

removing the conductive layer to a level below the level below the top of the insulating layer, thereby forming a container structure having sidewalls comprised of the conductive layer on the sidewalls of the opening, and a closed bottom comprised of the conductive layer on the bottom of the opening;

forming a dielectric cap on a top of the sidewalls of the conductive layer, wherein the dielectric cap comprises at least one dielectric material selected from the group consisting of oxides, nitrides and silicon oxynitrides;

removing the fill layer to expose an inside of the container structure; and

removing at least a portion of the insulating layer to expose an outside of the container structure; and

wherein forming a dielectric cap on a top of the sidewalls of the conductive layer further comprises: forming a layer of the at least one dielectric material on the insulating layer, the conductive layer and the fill layer; and removing the layer of the at least one dielectric material from the insulating layer and the fill layer.

34. (Canceled)

35. (Withdrawn) The method of claim 33, further comprising:

annealing the dielectric cap.

36-108. (Canceled)

109. (Currently Amended) A method of forming a semiconductor structure having a dielectric layer, comprising:

forming a conductive container structure having a closed bottom and sidewalls extending upward from the closed bottom;

forming a sacrificial layer;

forming a dielectric cap on a top of the sidewalls and sacrificial layer;

removing at least a portion of the sacrificial layer; and

using the dielectric cap as part of the dielectric layer .

110. (Canceled)

111. (Original) The method of claim 109, wherein forming a dielectric cap on a top of the sidewalls further comprises forming a dielectric cap of silicon oxynitride on a top of the sidewalls.

112. (Original) The method of claim 109, further comprising:

annealing the dielectric cap.

113. (Currently Amended) A method of forming a semiconductor structure, comprising:

forming a conductive container structure having a closed bottom and sidewalls extending upward from the closed bottom, wherein the conductive container structure comprises at least one silicon material selected from the group consisting of amorphous silicon, polysilicon and hemispherical grain polysilicon;

forming a dielectric cap on a top of the sidewalls, wherein the dielectric cap comprises at least one dielectric material selected from the group consisting of oxides, nitrides and silicon oxynitrides, and wherein forming a dielectric cap on top of the sidewalls includes forming a dielectric layer on an insulating layer, a conductive layer and a fill layer, and removing the dielectric layer from the insulating layer and the fill layer; and

forming a dielectric layer on the container structure using the dielectric cap as part of the dielectric layer.

114. (Canceled)

115. (Currently Amended) A method of forming a semiconductor structure, comprising:

forming a conductive container structure having a closed bottom and sidewalls extending upward from the closed bottom, wherein the conductive container structure comprises at least one silicon material selected from the group consisting of amorphous silicon, polysilicon and hemispherical grain polysilicon;

filing the container structure with a fill layer;

forming a dielectric cap on a top of the sidewalls, wherein the dielectric cap comprises at least one dielectric material selected from the group consisting of oxides, nitrides and silicon oxynitrides, wherein forming a dielectric cap includes forming a dielectric layer on ~~the~~ an insulating layer, ends of the conductive ~~layer~~ container structure and the fill layer, and removing the dielectric layer from the insulating layer and the fill layer;

removing the fill layer; and

annealing the dielectric cap.

116. (Canceled)

117. (Currently Amended) A method of forming a container capacitor, comprising:

forming a conductive container structure having a closed bottom and sidewalls extending upward from the closed bottom;

forming a dielectric cap on a top of the sidewalls and a fill layer in the container structure;

removing at least a portion of the fill layer;

forming a dielectric layer on the conductive container structure and including the dielectric cap; and

forming a cell plate on the dielectric layer, wherein the dielectric layer is interposed between the cell plate and the conductive container structure.

118. (Canceled)

119. (Previously Presented) The method of claim 117, wherein forming a dielectric cap on a top of the sidewalls further comprises forming a dielectric cap of silicon oxynitride on a top of the sidewalls.

120. (Previously Presented) The method of claim 117, further comprising:
annealing the dielectric cap.

121. (Currently Amended) A method of forming a container capacitor, comprising:
forming a conductive container structure having a closed bottom and sidewalls extending upward from the closed bottom, wherein the conductive container structure comprises at least one silicon material selected from the group consisting of amorphous silicon, polysilicon and hemispherical grain polysilicon;
forming a dielectric cap on a top of the sidewalls, wherein the dielectric cap comprises at least one dielectric material selected from the group consisting of oxides, nitrides and silicon oxynitrides, wherein forming a dielectric cap includes depositing dielectric material on a fill layer in the conductive container structure and on the top of the sidewalls, removing the dielectric material from the fill layer, and removing at least a portion of the fill layer;
forming a dielectric layer on the conductive container structure and the dielectric cap, wherein forming the dielectric layer includes incorporating the dielectric cap in the dielectric layer; and
forming a cell plate on the dielectric layer, wherein the dielectric layer is interposed between the cell plate and the conductive container structure.

122. (Canceled)

123. (Currently Amended) A method of forming a container capacitor, comprising:
forming a conductive container structure having a closed bottom and sidewalls extending upward from the closed bottom, wherein the conductive container structure comprises at least

one silicon material selected from the group consisting of amorphous silicon, polysilicon and hemispherical grain polysilicon;

forming a dielectric cap on a top of the sidewalls, wherein the dielectric cap comprises at least one dielectric material selected from the group consisting of oxides, nitrides and silicon oxynitrides, wherein forming a dielectric cap includes depositing dielectric material on a fill layer in the conductive container structure and on the top of the sidewalls, removing the dielectric material from the fill layer, and removing the fill layer;

annealing the dielectric cap;

forming a dielectric layer on the conductive container structure and the dielectric cap; and

forming a cell plate on the dielectric layer, wherein the dielectric layer is interposed between the cell plate and the conductive container structure.

124. (Previously Presented) The method of claim 123, wherein the processing proceeds in the order presented.

125. (Previously Presented) A method of forming a semiconductor structure, comprising the following processing steps in the order presented:

forming an insulating layer on a substrate;

forming an opening in the insulating layer, wherein the opening has a bottom on an exposed portion of the substrate and sidewalls defined by the insulating layer;

forming a conductive layer on the insulating layer and the exposed portion of the substrate;

forming a fill layer on the conductive layer, wherein the fill layer fills the opening;

removing the conductive layer and the fill layer to a level below a top of the insulating layer, thereby forming a container structure having sidewalls comprised of the conductive layer on the sidewalls of the opening, and a closed bottom comprised of the conductive layer on the bottom of the opening;

forming a dielectric cap on a top of the sidewalls of the conductive layer, wherein forming a dielectric cap includes forming a dielectric layer on the insulating layer, the conductive layer and the fill layer, and removing the dielectric layer from the insulating layer and the fill layer;

removing the fill layer to expose an inside of the container structure; and

removing at least a portion of the insulating layer to expose an outside of the container structure.

126. (Canceled)

127. (Canceled)

128. (Previously Presented) The method of claim 125, wherein removing the dielectric layer from the insulating layer and the fill layer further comprises removing the dielectric layer from the insulating layer and the fill layer using an anisotropic etch.

129. (Previously Presented) A method of forming a semiconductor structure, comprising:

forming an insulating layer on a substrate, wherein the insulating layer comprises at least one insulating material selected from the group consisting of oxides, nitrides and borophosphosilicate glass;

forming an opening in the insulating layer, wherein the opening has a bottom on an exposed portion of the substrate and sidewalls defined by the insulating layer;

forming a conductive layer on the insulating layer and the exposed portion of the substrate, wherein the conductive layer comprises at least one silicon material selected from the group consisting of amorphous silicon, polysilicon and hemispherical grain polysilicon;

forming a fill layer on the conductive layer, wherein the fill layer fills the opening, further wherein the fill layer comprises a filler material selected from the group consisting of photoresists and high etch-rate oxides;

removing the conductive layer and the fill layer to a level below a top of the insulating layer, thereby forming a container structure having sidewalls comprised of the conductive layer on the sidewalls of the opening, and a closed bottom comprised of the conductive layer on the bottom of the opening;

forming a dielectric cap on a top of the sidewalls of the conductive layer,wherein the dielectric cap comprises at least one dielectric material selected from the group consisting of oxides, nitrides and silicon oxynitrides, and wherein forming the dielectric cap includes:

forming a layer of the at least one dielectric material on the insulating layer, the conductive layer and the fill layer; and

removing the layer of the at least one dielectric material from the insulating layer and the fill layer; and

removing the fill layer to expose an inside of the container structure; and

removing at least a portion of the insulating layer to expose an outside of the container structure.

130. (New) The method of claim 109, wherein forming the sacrificial layer includes forming a fill layer and an insulating layer.

131. (New) The method of claim 130, wherein removing at least a portion of the sacrificial layer includes partially removing a dielectric.